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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,519	12/20/2005	Tetsuji Hirano	8007-1102	6376

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EXAMINER
GODENSCHWAGER, PETER F

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,519	HIRANO ET AL.	
	Examiner	Art Unit	
	PETER F. GODENSCHWAGER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,9-11,13,14 and 22-28* is/are pending in the application.

4a) Of the above claim(s) *26 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,9-11,13,14,22-25 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1,3-5,9-11,13,14 and 22-28* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's reply filed December 24, 2008 has been fully considered. Claims 1 and 14 are amended, claims 2, 6-8, 12, and 15-21 are cancelled, claims 26-28 are new, and claims 1, 3-5, 9-11, 13, 14, and 22-28 are pending.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Japan on July 11, 2003. However, certified copies of the priority documents have not been received from the International Bureau (PCT Rule 17.2(a)).

Election/Restrictions

Newly submitted claims 26 and 27 are directed to inventions that are independent or distinct from the invention originally claimed for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1, 3-5, 9-11, 13, 14, 22-25, and 28, drawn to an ion conductor.

Group II, claim(s) 26 and 27, drawn to a fuel cell, secondary battery, electric double layer capacitor, or electrolytic capacitor comprising an ion conductor.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding technical features for the following reasons: The technical feature linking Groups I-II is an ion conductor comprising an acid-base mixture comprising an acid component and a base component where the base component comprises 2-ethyl-4-methylimidazole. However, Warren (US Pat. No. 3,356,645) teaches a salt of an imidazole (a mixture of a base (imidazole) and an acid) (2:36-58). Warren further teaches the imidazole is 2-ethyl-4-methylimidazole, and that the imidazole salts are usually liquids or very low melting solids (2:29-32, 3:1-15).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26 and 27 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 14, 22, 23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Warren (US Pat. No. 3,356,645).

Regarding Claims 14 and 25: Warren teaches a salt of an imidazole (a mixture of a base (imidazole) and an acid) (2:36-58). Warren further teaches the imidazole is 2-ethyl-4-methylimidazole (3:1-15), and that the imidazole salts are usually liquids or very low melting

solids (2:29-32). The Examiner recognizes that all of the claimed physical properties are not positively taught by the reference, namely that the composition is ion/proton conductive and has a melting point 120 °C or lower and a glass transition temperature of 25 °C or lower. However, the reference teaches all of the claimed ingredients of the composition. Therefore, the claimed physical properties would inherently be achieved by the composition as claimed and disclosed. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Regarding Claims 22 and 23: Warren further teaches acids that are structurally free of fluorine such as the inorganic acid phosphoric acid (2:50-60).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-5, 9-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warren (US Pat. No. 3,356,645) in view of Olson (US Pat. No. 5,508,328).

Regarding Claims 1 and 13: Warren teaches a salt of an imidazole (a mixture of a base (imidazole) and an acid) (2:36-58). Warren further teaches the imidazole is 2-ethyl-4-methylimidazole (3:1-15).

Warren does not teach 4-methylimidazole. However, Olson teaches salts of 4-methylimidazole (mixture of acid and a base) as a curing agent for curing epoxy resins (5:30-60). Warren and Olson are analogous art because they are concerned with the same field of endeavor, namely curing of epoxy resins with imidazole salt curing agents. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the 4-methylimidazole salt of Olson with the 2-ethyl-4-methylimidazole salt of Warren and would have been motivated to do so because both compounds are known individually to be effective curing agents for epoxy resins, and therefore one would have a reasonable expectation of success in forming a third composition comprising a combination of the two, see MPEP 2144.06:

> MPEP 2144.06 Art Recognized Equivalence for the Same Purpose
>
> COMBINING EQUIVALENTS KNOWN FOR THE SAME PURPOSE
>
> "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art."

Regarding Claims 3 and 5: Warren further teaches that the imidazole salts are usually liquids or very low melting solids (2:29-32). The Examiner recognizes that all of the claimed physical properties are not positively taught by the references, namely the melting point of the composition. However, the references render obvious all of the claimed ingredients of the composition. Therefore, the claimed physical properties would inherently be achieved by the composition as claimed and rendered obvious. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Regarding Claim 4: Warren further teaches that the imidazole and acid is mixed in a 1:1 ratio (3:25-27).

Regarding Claims 9-11: Warren further teaches acids that are structurally free of fluorine such as the inorganic acid phosphoric acid (2:50-60).

Claims 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warren (US Pat. No. 3,356,645) in view of Olson (US Pat. No. 5,508,328).

Warren teaches the composition of claims 14 and 23 as set forth above.

Regarding Claim 24: Warren does not specifically teach the inorganic acid sulfuric acid. However, Olson teaches the use of sulfuric acid to form salts with imidazoles for use as curing agents for curing epoxy resins (5:30-60). Warren and Olson are analogous art because they are concerned with the same field of endeavor, namely curing of epoxy resins with imidazole salt curing agents. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the sulfuric acid of Olson in place of the phosphoric acid of Warren and would have been motivated to do so because they are art recognized equivalents known for the same purpose as evidenced by the teaching of Olson that both phosphoric acid and sulfuric acid are suitable for reaction with imidazoles for form salts usable as curing agents for epoxy resins (5:50-60).

Regarding Claim 28: Warren does not teach 4-methylimidazole. However, Olson teaches salts of 4-methylimidazole (mixture of acid and a base) as a curing agent for curing epoxy resins (5:30-60). Warren and Olson are analogous art because they are concerned with the same field of endeavor, namely curing of epoxy resins with imidazole salt curing agents. At the

time of the invention, a person of ordinary skill in the art would have found it obvious to use the 4-methylimidazole salt of Olson with the 2-ethyl-4-methylimidazole salt of Warren and would have been motivated to do so because both compounds are known individually to be effective curing agents for epoxy resins, and therefore one would have a reasonable expectation of success in forming a third composition comprising a combination of the two, see MPEP 2144.06:

> MPEP 2144.06 Art Recognized Equivalence for the Same Purpose
>
> COMBINING EQUIVALENTS KNOWN FOR THE SAME PURPOSE
>
> "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art."

Response to Arguments

Applicant's arguments filed December 24, 2008 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 1, 3-5, 9-11, 13, 14, and 22-28 have been considered but are moot in view of the new ground(s) of rejection. Note specifically the rejections above in light of Olson (US Pat. No. 5,508,328) with regards to the combination of 2-ethyl-4-methylimidazole and 4-methylimidazole, and the use of sulfuric acid with 2-ethyl-4-methylimidazole.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. F. G./
Examiner, Art Unit 1796
March 31, 2009

/Harold Y Pyon/
Supervisory Patent Examiner, Art Unit 1796